
वस्त्रादि — मछली पकड़ने के
गियर की सामग्री — परीक्षण विधि

भाग 3 ऐंठन का निर्धारण

(पहला पुनरीक्षण)

**Textiles — Fishing Gear
Materials — Methods of Test**

Part 3 Determination of Twist

(*First Revision*)

ICS 65.150

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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by Textile Materials for Marine/Fishing Purposes Sectional Committee had been approved by the Textile Division Council.

This standard is one of the series of India standards on methods of test of fishing gear materials. This standard was first published in 1970. It has been revised to align it with latest trade practices.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

In reporting the results of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'.

Indian Standard

**TEXTILES — FISHING GEAR
MATERIALS — METHODS OF TEST**

PART 3 DETERMINATION OF TWIST

(First Revision)

1 SCOPE

This standard (Part 3) prescribes the method for determination of twist in terms of turns per unit length and the direction of single, ply and cable twist in fish net yarns.

2 REFERENCES

The following standard contains provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of this standard:

<i>IS No.</i>	<i>Title</i>
6359 : 1971	Method for conditioning of textiles

3 TERMS AND DEFINITIONS

For the purpose of this standard, the following terms and definitions shall apply:

3.1 Cabled Yarn (or Cord) — The product formed by twisting together two or more plied yarns.

3.2 Plied Yarn — The product formed by twisting together two or more single yarns or strands in one operation.

3.3 Ply — The number of single yarns twisted together to form a plied yarn.

3.4 Single Yarn — The yarn in which the fibres are twisted in only one direction and form the simplest strand of fibres suitable for weaving, knitting, etc. or which consists of a group of filaments with or without twist running throughout the continuous length of netting material forming the simplest strand.

3.5 Twist — The spiral disposition of the components of a yarn which is usually the result of relative rotation of the two ends or the number of turns per unit length of yarn.

3.6 ‘S’ Twist — A single or plied yarn is said to have ‘S’ twist when the spirals of a single yarn or plied yarn held in a vertical position are in line with the central portion of the letter ‘S’.

3.7 ‘Z’ Twist — A single or plied yarn is said to have ‘Z’ twist when the spiral of a single yarn or plied yarn held in a vertical position are in line with the central portion of the letter ‘Z’.

NOTE — Twist may be inserted in single, plied or cabled yarns in one of the two directions at any stage of twisting. The direction of twist shall be indicated by the capital letters ‘S’ or ‘Z’. If the folding turns in a plied yarn are in the same direction as those in the single yarn, from which it is made, the twists in the plied yarn shall be designated as S [S or Z/Z as the case may be. If they are in opposite directions, they shall be designated as S/Z or Z/S, the first letter indicating the direction of twist in the single yarn and the second, the direction of twist in the plied yarn. Similarly, in a cabled yarn, the direction shall be designated in order of directions of twist inserted in single yarn, the first fold and the second fold, as for example S/Z/S.

3.8 Twisting or Doubling or Folding — The process of twisting together two or more threads to make a stronger or fancy thread.

3.9 Twist Take-Up — The change in length by twisting, expressed as a percentage of the original untwisted length.

4 PRINCIPLE

The twist in a known length of yarn is removed by rotating one end of the specimen in respect to the other until the elements being tested are parallel. The exact number of turns required to remove the twist is reported in terms of turns per unit length.

5 ATMOSPHERIC CONDITIONS FOR TESTING

5.1 The tests shall be carried out in the standard atmosphere (*see 5.2*).

5.2 Conditioning of Test Specimen

The test samples shall be conditioned to a state of moisture equilibrium from dry state in standard

atmosphere at 65 ± 5 percent relative humidity and 27 ± 2 °C temperature (*see also* IS 6359).

6 APPARATUS

The twist tester shall consist of a pair of clamps; one of them shall be such that it is capable of being rotated in either direction, and shall be positively connected to a revolution counter capable of recording with an accuracy of one-tenth of a turn and the other shall be such that it is not capable of rotation but it is possible to slide it so that the distance between the clamps becomes adjustable. The tester shall be such that the prescribed tension may be applied to the specimen under test.

7 PROCEDURE

7.1 Determination of Twist in Cabled Yarn

Set the sliding clamp 25 cm away from the rotating clamp. Set the revolution counter to zero.

Mount one test specimen in the clamps (taking care not to allow any twist to run out), straightening it out by applying a tension equal to $\text{tex}/2$. Revolve the rotating clamp to untwist the specimen until it is possible to pass a needle, from one clamp to the other, between the strands of the component plied yarn. Note and record the reading on the revolution counter. Cut off all but one component strands of plied yarn near the jaws of the clamps and remove them. Test the component strand of plied yarn (still in the clamps) for twist as detailed in 7.2.

7.1.1 Test similarly the remaining test specimens of cabled yarn for twist and record the test values.

7.2 Determination of Twist in Plied Yarn

Set the sliding clamp 25 cm away from the rotating clamp. Set the revolution counter to zero.

Mount one test specimen in the clamp (taking care not to allow any twist to run out), straightening it out by applying a tension equal to $\text{tex}/2$. Revolve the rotating clamp to untwist the specimen until it is possible to pass a needle from one clamp to the other, between the strands of the component single yarn. Note and record the reading on the revolution counter. Cut off all but

one component strand of single yarn near the jaws of the clamps and remove them. Test the component strand (still in the clamps) for twist as detailed in 7.3.

7.2.1 Test similarly the remaining test specimens of plied yarn and record the test values.

7.3 Determination of Twist in Single Yarn

Set the sliding clamp 2.5 cm away from the rotating clamp. Set the revolution counter to zero.

Mount one test specimen in the clamps (taking care not to allow any twist to run out), straightening it out by applying a tension equal to $\text{tex}/2$. Revolve the rotating clamp to untwist the specimen until it is possible to pass a needle, from one clamp to the other, between the untwisted fibres of the specimen. Note and record the reading on the revolution counter.

7.3.1 Test the remaining test specimens similarly and record the test results.

7.4 Note the reading on the revolution counter correct to two places of decimal and record it.

7.5 Direction of Twist

If required, the direction of twist in single, plied and cabled yarns and the components of the latter two shall also be visually determined (*see* 3.6 and 3.7) and reported along with the results.

7.6 Test Specimens

For single, plied and cabled yarns the minimum number of test specimens to be chosen shall be 10.

8 RESULTS

8.1 The mean of the values obtained on testing all the test specimens of cabled yarn, plied yarn and single yarn shall form the basis of the report of the results. The mean value shall be reported as turns per metre rounded off to the nearest integer.

8.2 When required, report also the change in length on untwisting, calculated as a percentage of the length before twisting as twist take-up.

ANNEX A*(Foreword)***COMMITTEE COMPOSITION**

Textile Materials for Marine/Fishing Purposes Sectional Committee, TXD 18

<i>Organization</i>	<i>Representative(s)</i>
ICAR-Central Institute of Fisheries Technology, Kochi	SHRIMATI (DR) SALY N. THOMAS (<i>Chairman</i>)
Association of Indian Fishery Industries, New Delhi	SHRI T. RAGUNATH REDDY DR C. BABU RAO (<i>Alternate</i>)
Centre for Marine Living Resources and Environment, Kochi	DR SHERINE SONIA CUBELIO DR HASHIM (<i>Alternate</i>)
Central Institute of Fisheries, Nautical and Engg Training, Kochi	SHRI M. G. MAKWANA
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ICAR-Central Institute of Fisheries Technology, Kochi	SHRIMATI (DR) SALY N. THOMAS DR SANDHYA K. M. (<i>Alternate</i>)
ICAR-Central Marine Fisheries Research Institute, Kochi	DR RATHEESH
Fisheries Development Commissioner, New Delhi	DR PAUL PANDIYAN DR SANJAY PANDEY (<i>Alternate</i>)
Fisheries Survey of India, Mumbai	DR S. RAMACHANDRAN SHRI A. E. AYOOB (<i>Alternate</i>)
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Indian Fishnet Manufacturers' Association, Chennai	SHRI M. K. UNNI KRISHNAN
National Institute of Ocean Technology, Chennai	DR G. DHARANI DR N. V. VINITHKUMAR (<i>Alternate</i>)
Office of the Textile Commissioner, Mumbai	SHRI AJAY PANDIT SHRI N. K. SINGH (<i>Alternate</i>)
Reliance Industries Limited, Mumbai	SHRI M. S. VERMA SHRI KESHAV PAREEK (<i>Alternate</i>)
SRFP Limited, Chennai	SHRI N. SANTHAN SHRI R. RAGHVENDRA SAYEE (<i>Alternate</i>)
The Synthetic and Art Silk Mills' Research Association, Mumbai	SHRIMATI ASHWINI A. SUDAM SHRI RAVI PRAKASH SINGH (<i>Alternate</i>)
The Karnataka Fisheries Development Corporation Ltd, Bangaluru	MANAGING DIRECTOR
The Kerala State Cooperative Federation for Fisheries Development Ltd, Kochi	SHRI P. SURENDREN
The Marine Products Export Development Authority, Kochi	DR M. K. RAMMOHAN SHRI A. SAKTHIVEL (<i>Alternate</i>)
BIS Directorate General	SHRI A. K. BERA, SCIENTIST 'F' AND HEAD (TXD) [REPRESENTING DIRECTOR GENERAL (<i>Ex-officio</i>)]

*Member Secretary*SHRI A. K. BERA
SCIENTIST 'F' AND HEAD (TEXTILES), BIS

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